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G Peter Nichols
Brinks Hofer Gilson & Lione
P O Box 10395
Chicago, IL 60610

EXAMINER

PIERCE, JEREMY R

ART UNIT

PAPER NUMBER

1771

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/474,634

Applicant(s)

TSAI ET AL.

Examiner

Jeremy R. Pierce

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-- Th MAILING DATE of this communication app ars on the cover sh t with th correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 24-28 is/are pending in the application.
- 4a) Of the above claim(s) 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 24-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed on October 12, 2004 has been entered. Claims 1, 24, 25, and 27 have been amended. Claims 1-16 and 24-28 are currently pending with claim 16 withdrawn from consideration. The amendment is sufficient to overcome the 112 rejections concerning the "overbind" limitation in the claims. The new matter rejection to claim 25 is withdrawn, since support for the amended fiber length limitation appears to be found at page 2, lines 1-2. The new matter rejection to claim 27 is also withdrawn because support for the new limitation of melting temperature is found in Table 2 at Sample 3. The double patenting rejection set forth in section 9 of the last Office Action is withdrawn because App. 09/474,579 has gone abandoned.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-15 and 24-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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Claim 1 recites "the biodegradable nonwoven web is carded and then thermally bonded at a temperature less than about 23°C, above the melting temperature of the first biodegradable binder fiber." Support is not found for this in the specification. Nowhere does Applicant specifically teach that bonding at a temperature of less than about 23°C above the melting temperature of the first biodegradable binder fiber is advantageous for the present invention. Applicant discloses that Sample 2 of Table 2 is hard and lumpy, but nothing in the specification teaches that the range of any temperature less than 23°C above the melting temperature for any type of fiber is useful. The single point in the specification does not embrace the entire range claimed by Applicant.

Claim 24 recites "a fiber length of at least about 35 millimeters" for the first and second biodegradable fibers. No support is found for this recited length of the second fiber. A single example disclosing a length of 1.5 inches does not support a range of at least 35 millimeters.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-15, 17-22, and 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai et al. (U.S. Patent No. 5,698,322) in view of Takeda et al. (EP

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801,172) and either Handbook of Technical Textiles (HTT) or Thermal Bonding of Nonwoven Fabrics (TBNF).

Tsai et al. teach Applicant's claimed sheath/core binder fiber, as set forth in the previous Office Actions. Tsai et al. also teach said fibers as a mixture of fibers in a nonwoven, but fail to teach the other fibers that comprise said mixture (column 2, lines 40-55). Tsai et al. disclose said binder fibers to be thermally bonded, but is silent with respect to a particular method of thermal bonding (col. 3, lines 55-56).

Takeda et al. is concerned with the creation of a biodegradable nonwoven web. Takeda et al. teach a combination of PLA binder fibers (p. 3, lines 4 and 57-58) and cellulose acetate fibers (p. 3, line 39) in amounts anticipating Applicant's claimed amounts (p. 3, line 42). It would have been obvious to a person having ordinary skill in the art to form the mixture taught by Tsai with Takeda's cellulose acetate fiber. Such a combination would have been motivated by the desire to increase the liquid absorbency, impregnation retention, and tensile strength of Takeda's fibers (p. 3, lines 36 and 47).

Tsai teaches said binder fibers can be bonded at a temperature below 145 degrees, but does not teach a method of effectuating said bonding (col. 6, line 48). HTT and TBNF both teach the extremely common and well-known method of through-air bonding (p. 143 and 1, respectively). It would have been obvious to bond the fabric of Tsai by a through-air bonding method. Such a modification would have been motivated by the desire to fill the gaps of Tsai's teachings and produce a bulky, open, soft, strong, extensible, breathable, and absorbent nonwoven material.

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With respect to applicant's claimed melting/bonding temperature of said binder fibers, this property is inherent in the polymer. Tsai teaches applicant's claimed range of melting points. Therefore, it would have been obvious to bond said fibers within 2-10 degrees above or below the melting point based on the desired production speed. Altering the bonding temperature also allows for optimization of the strength and disintegrability properties of the web.

With respect to the claimed temperature at which the web is bonded, one having ordinary skill in the art would have found it obvious to bond the nonwoven fabric within 23 degrees above the melting temperature or within 2 degrees below. Tsai is concerned with the creation of a nonwoven web, which more easily disintegrates, yet has sufficient strength (col. 1, lines 52-65). Tsai also teaches that is desirable to keep the bonding temperature low (column 2, lines 3-11). A fabric would disintegrate more readily if it were less bonded. Similarly, a fabric would have increased tear strength if bonding were increased. Increasing or decreasing the bonding temperature can easily modify the amount of bonding. Higher temperatures melt more fibers to create more bonding sites. Lower temperatures, of course, have the opposite effect. Therefore, the skilled artisan would have been motivated to decrease the bonding temperature by the desire to increase the disintegration ability of Tsai's fabric. The skilled artisan would have been motivated to increase bonding temperature by the desire to increase the strength of the fabric. Bonding temperature is a result effective variable that modifies the properties of the web. It would have been obvious to a person having ordinary skill in the art at the time of the invention to bond at a temperature within 23 degrees of the

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melting point in order to enable the binder fibers to perform the desired function of bonding the web, and to not cause the structural fibers to melt, since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

With respect to applicant's claimed permeability and void volume, it is the Examiner's position that these properties are inherent in the web created by the combination set forth above because said combination teaches the same materials, structure, and method of production claimed by applicant.

Response to Arguments

6. Applicant's arguments filed September 3, 2004 have been fully considered but they are not persuasive.

7. Applicant argues that neither Tsai et al. nor Takeda et al. teach or suggest the claimed ranges of permeabilities and void volumes. However, Tsai et al. teaches that the fibers are to be used in a liquid permeable topsheet (column 9, lines 40-41).

Additionally, Applicant's claimed product is made using the same materials and using the same method as the combination of references, so the resulting properties of the web must be inherent. Through-air bonding provides a nonwoven web with a higher degree of permeability because no compression of the fabric is involved. Applicant's claimed permeabilities would be inherent or a matter of obvious optimization.

8. Applicant argues that there is no motivation to combine the Tsai et al. and Takeda et al. references. However, both references are concerned with disposable

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absorbent products. Takeda et al. provide Tsai et al. with a natural fiber (cellulose acetate) that is cost efficient and highly degradable, so a person of ordinary skill in the art would be motivated to use the cellulose acetate of Takeda et al. in the invention of Tsai et al. in order to provide a cost efficient degradable absorbent product.

9. Applicant argues that Takeda et al. teach away from thoroughly bonding the web. However, Takeda et al. disclose that the sheet is heated at a high enough temperature to cause the thermal synthetic fibers to melt (p. 3, lines 57-58), which meets Applicant's claim limitation.

10. Applicant argues that the physical properties cannot be inherent when two nonwoven webs containing identical materials have two entirely different physical structures. Applicant supports this argument by pointing to samples 2 and 3 from Table 2 in the specification. However, these two structures are physically different because they are bonded at two entirely different temperatures. The combination of references does not teach bonding at the higher undesirable temperature. Heat bonding a web containing two different types of fibers, one of which is designated as a binder fiber, is typically done at the temperature range at which the binder fiber melts, as set forth above.

11. Applicant argues that a prima facie case of obviousness may be rebutted with proof of unexpected results. However, no unexpected results are shown in the specification. Applicant cites page 4, lines 7-9 of the specification, but this only states that the web of the present invention demonstrates superior properties. In the specification, Applicant compares the void volume and permeability values to a web

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containing polyester staple fibers and polyolefin bi-component binder fibers to show different results. However, the prior art used in the rejections does not contain polyester staple fiber and polyolefin bi-component binder fiber.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy R. Pierce whose telephone number is (571) 272-1479. The examiner can normally be reached on Monday-Thursday 7-4:30 and alternate Fridays 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JRP

December 27, 2004



Ms. Arti R. Singh

Primary Examiner

Tech Center 1700